Receipt #2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mark Rapaich

Title: DIGITAL YUV VIDEO EQUALIZATION AND GAMMA CORRECTION

Docket No.: 450.221US1
Filed: December 21, 1998
Examiner: Unknown

Serial No.: 09/217,873
Due Date: N/A
Group Art Unit: 2711

Assistant Commissioner for Patents
Washington, D.C. 20231

We are transmitting herewith the attached:

X Communication Re: Incorrect Filing Receipt (1 pg.)

X Copy of Filing Receipt (1 pg.)

X A return postcard.

X a copy of the Patent Application (1pg.)

No Additional fee is required.

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described above, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on this 2nd day of February, 1999.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938, Minneapolis, MN 55402 (612-373-6900)

By: 
Name: Bradley A. Forrest
Reg. No. 30,837
BAF:CMG:lht

S/N 09/217,873 PATENT

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COMMUNICATION RE: INCORRECT FILING RECEIPT

Assistant Commissioner for Patents
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Applicants hereby request correction of the Filing Receipt with respect to the above-identified patent application. In the Filing Receipt received January 25, 1999, (copy enclosed), the Title is incorrect. The Title should be corrected to re read, ***DIGITAL YUV VIDEO EQUALIZATION GAMMA AND CORRECTION***, as evidenced by the Patent Application (copy enclosed).

Applicant would appreciate the above-identified printing error be corrected and that a new "corrected" filing receipt be sent to Applicant's representatives at the address given below.

Respectfully submitted,

MARK RAPAICH

By his Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9581

Date 2-2-99 By _____

Bradley A. Forrest
Reg. No. 30,837
BAF:CMG:lht

Digital YUV Video Equalization and Gamma Correction

Field of the Invention

The present invention relates to video equalization and gamma correction in computer systems and in particular to video equalization and gamma correction of digital YUV video signals.

Background

Cathode ray tubes, CRTs, are made with electron guns which emit electrons that are guided by electromagnetic fields to provide a picture on a screen. It has been long known that CRTs do not produce a light intensity proportional to the input voltage controlling the strength of the electron gun emissions. Instead, the intensity produced by a CRT is proportional to the input voltage raised by a power of a value referred to as gamma. The value of gamma varies depending on the CRT, but is typically close to 2.5. Projecting an image that is not distorted in contrast therefore requires correcting the intensity voltage provided to the electron guns of the CRT by a power of gamma.

Most sensors used in television cameras produce output voltages proportional to image intensity. A correction for CRT gamma must be applied to the camera signal at some point before the image is displayed on a CRT. Television standards include an initial gamma correction of 0.45 applied in the television camera, to compensate for both the CRT gamma of 2.5 and the apparent reduction in contrast when a TV is viewed against the dim background typically found in a living room.

Many computer displays ignore the effects of CRT monitor or display gamma. Digital video information is converted linearly into voltages that drive the CRT in the display. The digital image intensity values in the frame buffer are therefore not proportional to the resulting display intensity. For example, a digital value of one half the maximum in the frame buffer will result in a displayed intensity less than one half maximum display intensity.

Some displays include hardware lookup tables that correct for monitor gamma. In these systems, digital RGB frame buffer values provided by the system are corrected for

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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
09/217,873	12/21/98	2711	$760.00	450.221US1	2	11	3

SCHWEGMAN LUNDBERG WOESSNER
& KLUTH
PO BOX 2938
MINNEAPOLIS MN 55402

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PATENT & TRADEMARK OFFICE
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DV March 21, 1999 - DDS
sept. 21, 1999 CM6
NOV. 5, 1999
Dec. 21, 1999 - conv. exp.

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s)

MARK RAPAICH, WESTFIELD, IA.

FOREIGN FILING LICENSE GRANTED 01/20/99
TITLE
DIGITAL YUV VIDEO EQUALIZATION GAMMA CORRECTION

PRELIMINARY CLASS: 348

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Schwegman, Lundberg,
Woessner & Kluth, P.A.

JAN 25 1999

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DATA ENTRY BY: SASFAI, DAVID J. TEAM: 03 DATE: 01/20/99

(see reverse)